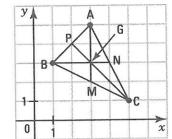
- **5.** Given the end-points A(2, 1) and B(6, 9) of segment AB. The point P divides segment AB in the ratio 3:1 from A.
  - a) Determine the ratio in which point P divides segment AB from B. \_\_\_\_\_\_1:3
  - b) Determine the coordinates of point P in two ways:
    - 1 from A  $x_p = 2 + \frac{3}{4}(4) = 5$ ;  $y_p = 1 + \frac{3}{4}(8) = 7$ . P(5, 7)
    - 7 from B.  $x_p = 6 + \frac{1}{4}(-4) = 5$ ;  $y_p = 9 + \frac{1}{4}(-8) = 7$ . P(5, 7)
- **6.** In each of the following cases, determine the coordinates of point P which divides segment AB in the given ratio from A.
  - a) A(-3, 1) and B(5, 3); ratio 3:1.  $P(3, \frac{5}{2})$  b) A(14, 4) and B(2, 1); ratio 1:2. P(10, 3)
- 7. In each of the following cases, find the coordinates of point P if it is located

  - b) at  $\frac{3}{8}$  of the way on segment AB from B, given A(-12, -17) and B(-4, -1);  $\underline{P(-9, -11)}$
- $\blacksquare$  Given A(3, 5), B(1, 3) and C(5, 1) the vertices of a triangle ABC.
  - a) Determine the coordinates of the points M, N and P that are the mid-points of side BC, AC and AB respectively.

    M(3, 2); N(4, 3); P(2, 4)



- b) Draw the medians AM, BN and CP and graphically determine the coordinates of point G, the triangle's centre of gravity. <u>G(3, 3)</u>
- c) Verify the following property: "The centre of gravity divides each median in the ratio 2:1 from each vertex".